

REVISED

DATE: March 17, 2015

TO: Associate Region Engineers – Development
Region Design Engineers
Operations – Field Services Division
Bridge Development – Design Division
Design Programs – Design Division

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SUBJECT: Updated Design Submittal Requirements

MDOT is continuing its implementation of changes to design processes and plan set standards per Design Advisory DA 2012-05. The changes directed by this memo expand upon the current requirements and include three-dimensional (3D) model design and design submittal requirements. MDOT generated the 3D model requirements in partnership with representatives from Michigan's consulting, contracting, and surveying communities. These requirements are in alignment with a national effort within the transportation industry, and the MDOT/FHWA Every Day Counts 2 - Electronic 3D Models Initiative to fully implement 3D modeling to promote automated construction and increase the efficient flow of data from design to the field.

3D models not only greatly enhance the design process by allowing intricate design features to be viewed geospatially from multiple perspectives and by helping to detect design flaws before construction, but they also greatly enhance activities during construction. Data from the models can be transferred to Automated Machine Guidance (AMG)/Automated Machine Control (AMC) systems which direct construction equipment such as bulldozers, excavators and pavers. In addition to improving quality and safety, studies have shown that this technology increases productivity, cuts construction survey layout costs, and reduces idle time of equipment, translating to faster project delivery and cost savings.

3D Model Requirements:

With all of the known efficiencies and benefits, 3D model deliverables as part of the Reference Information Documents (RID) will be included on all applicable trunkline projects with design commencing after March 1, 2015. The RID process will require the inclusion of proposed 3D models for all projects as a general rule. Please refer to the [Project Data Requirements Table.pdf](#) document to determine the categories that are required for each project type (Project Description). The table is intended to capture the majority of the projects listed under each project description. At the discretion of the MDOT Project Manager, some of the categories or RID files may be excluded based on the project parameters. Please see [Section 2.1](#) for further guidance.

A [Development Guide Wiki](#) page has been developed as a single source location for the [Design Submittal Requirements](#). This page will permit the user to select pages to watch, allowing the user to stay up-to-date with changes that are made to the requirements. The [Help Page](#) explains the process for suggested changes to keep the design Wiki up to date. There are three different types of changes that may affect the content of the Design Wiki Page. The revision process for each type is outlined on the [Help Page](#).

RID Updates

In accordance with the 3D model requirements, the following documents have been created, revised, or replaced on the MDOT website and have been incorporated or linked in the [Development Guide Wiki](#):

- Example RID Index replaced by [RID Index.xlsx](#)
- MDOT [Standard Naming Conventions](#) created as a Chapter
- [Cadd Filenames.pdf](#) has been updated
- [RID Review Checklist.xlsm](#) has been created to assist the design teams and MDOT-RIDSupport in creating and reviewing the RID files
- [3D Model Submittal Preparation SS2.pdf](#) and [3D Model Submittal Preparation SS3.pdf](#) have been created
- [3D Model Surface Feature List SS2.pdf](#) and [3D Model Surface Feature List SS3.pdf](#) have been created

PPMS Updates

To support the additional efforts in design, updates to existing PPMS milestone task descriptions have been implemented to incorporate the additional 3D Model deliverables with milestone submittals. MDOT-RIDSupport@michigan.gov was added as part of the review process. The milestones affected include tasks 3580 and 3840. Please see the [PPMS Task Manual](#) for task updates.

Road Design Manual (RDM) Updates

Updates to Chapter 1 and Chapter 14 of the Road Design Manual will follow within the month. Sections 14.36, 14.54, and 14.65 will be modified to make reference to the new [Design Submittal Requirements](#) and reduce redundancy.

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Assistance to Project Managers negotiating the aforementioned, revised PPMS tasks will be available upon request. Project Managers are encouraged to contact MDOT-RIDSupport@michigan.gov with questions or for assistance with the updated PPMS tasks.

Please ensure that this direction is provided to all project managers in your area. As other innovations, (bridge, drainage, etc.), are developed for the MDOT_02 Workspace to utilize these PowerGEOPAK tools, updates will be added to the Design Wiki and users will be notified. If you have questions, please contact MDOT-RIDSupport@michigan.gov or Dan Belcher, Design Services Section Manager, at 517-335-2182 or belcherd@michigan.gov.

[Signature on File]
Engineer of Design

^[1] EDC 2012 Initiatives: Three-Dimensional Modeling, 5-18-12, 10-10-13,
<http://www.fhwa.dot.gov/everydaycounts/edctwo/2012/3d.cfm>.

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